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EXAMINER	
THANGAVELU, KANDASAMY	

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/976,187	SIMMONS ET AL.	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 October 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3 January 2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-30 of the application have been examined.

Domestic Priority not Granted

2. This application contains a claim for the benefit of priority based on U.S. Provisional Application No. 60/240,197 filed on October 12, 2000. Provisional Application 60/240,197 has been reviewed and priority denied, because the Provisional Application 60/240,197 fails to satisfy the requirements of 35 U.S.C section 112, first paragraph, as described below:

The provisional application contains schematics and detailed descriptions of the HVAC system. However, it does not describe the numerous modules of the article in the computer readable medium and their features and functions as claimed in Claims 1-21. It also does not describe the method claimed in claims 22-30. One of ordinary skill in the art would require undue experimentation to arrive at the material claimed in the invention from the provisional application filed on October 12, 2000. See 35 U.S.C 119 (e) (1).

Therefore, for the purpose of art rejection the Applicants' actual filing date is used as the effective filing date.

Information Disclosure Statement

3. Acknowledgment is made of the information disclosure statements filed on January 3, 2002 with a list of patents. The patents have been considered.

Drawings

4. The drawings submitted on October 12, 2001 are acceptable subject to correction of the following informalities:

Fig. 9 shows IHL-1 and ICL-1 numbered 213. The IHL-1 should be numbered 214.

Fig. 16 shows both component objects and connector objects numbered 336. Connector object should be numbered 338.

Fig. 20 has component object numbered 338. It should show connector object with number 338. The Rendering should be numbered 450.

Appropriate corrections are required.

Abstract

5. The abstract is objected to because of the following informalities:

Abstract has a last line with the text, "Docket: 3201.2.1". This text should be deleted from the abstract.

Appropriate correction is required.

Specification

6. The disclosure is objected to because of the following informalities:

Specification Page 4, Para 4, Lines 1-4, "an article configured as a computer readable medium storing data structures of both executable and operational types. Data structures may include input module configured to receive inputs corresponding to design elements" appears to be incorrect as explained in Paragraph 8 below,

Specification Page 5, Para 4, Lines 1-2, "The input module and user interface module may be configured to interface with the design module substantially independently from one another" appears to be incorrect since the user interface module is part of the input module as shown in Fig. 2 and Fig. 13; all inputs provided by the user through the user interface module will be validated by the input module before appropriate action is taken by the input module.

Specification Page 7, Para 2, Lines 1-3, "A compensation module may be configured to identify the monetary compensation due to a user from vendors of the products specified as design elements in the HVAC design" appears to be incorrect as it conflicts with Page 4, Para 2, Lines 1-3, "a business may be credited financially for providing software to a user who subsequently uses the software to make a purchasing decision". Typically, compensation will be paid by a user to vendors of the products specified as design elements.

Specification Page 14, Para 3, Lines 1-2, "a memory device 14 or memory devices 14 may store executable and operational data (e.g. data structures)" appears to be incorrect as data is not executable as explained in Paragraph 8 below".

Specification Page 31, Para 3, Lines 4-5, "The connection checking module 290 may analyze the connections between components provide feedback to the user

indicating unacceptable connections" appears to be incorrect and it appears that it should be "The connection checking module 290 may analyze the connections between components and provide feedback to the user indicating unacceptable connections".

Specification Page 34, Para 2, Lines 1-2, "A CAD software interface module 310 may enables a user or a computer " appears to be incorrect and it appears that it should be "A CAD software interface module 310 may enable a user or a computer".

Specification Page 37, Para 3, Lines 1-2, "A project object may also contain components 124 and connections 126, which may be embodied as instances of component objects 336 and connection objects 338" appears to be incorrect and it appears that it should be "A project object may also contain components 124 and connections 336, which may be embodied as instances of component objects 336 and connection objects 338".

Specification Page 37, Para 4, Line 6, "the attributes 370" appears to be incorrect and it appears that it should be "the attributes 350".

Specification Page 38, Para 1, Line 3 and Line 5, "components 126 and connections 124" appears to be incorrect and it appears that it should be "components 124 and connections 126", as per Fig. 3.

Specification Page 38, Para 2, Lines 1-2, "consistency of the connections 124, connections 126" appears to be incorrect and it appears that it should be "consistency of the components 124, connections 126".

Specification Page 38, Para 2, Line 7, "A design creating method 375" appears to be incorrect and it appears that it should be "A design creating method 376".

Specification Page 38, Para 3, Line 6, "For example,, a user interface method" appears to be incorrect and it appears that it should be "For example, a user interface method".

Specification Page 39, Para 2, Line 3, "an equipment object 334 may, For example,, comprise" appears to be incorrect and it appears that it should be "an equipment object 334 may, for example, comprise".

Specification Page 39, Para 3, Line 1, "Notes 404 may, For example,, comprise" appears to be incorrect and it appears that it should be "Notes 404 may, for example, comprise".

Specification Page 39, Para 5, Line 1, "an equipment object 334 may include, For example,, attribute" appears to be incorrect and it appears that it should be "an equipment object 334 may include, for example, attribute".

Specification Page 40, Para 3, Lines 2-3, "a component object 336 may include, For example,, rendering" appears to be incorrect and it appears that it should be "a component object 336 may include, for example, rendering".

Specification Page 40, Para 4, Lines 2-3, "indicate what type of equipment an connection object belongs" appears to be incorrect and it appears that it should be "indicate what type of equipment a connection object belongs".

Specification Page 40, Para 5, Line 1, "a component object 336 may include, For example,, rendering" appears to be incorrect and it appears that it should be "a component object 336 may include, for example, rendering".

Specification Page 41, Para 3, Lines 1-2, "a connector object 338 may include, For example,, connection data" appears to be incorrect and it appears that it should be "a connector object 338 may include, for example, connection data".

Specification Page 41, Para 4, Line 1, "a connector object 338 may include, For example,, rendering" appears to be incorrect and it appears that it should be "a connector object 338 may include, for example, rendering".

Specification Page 42, Para 1, Lines 1-2, "a information updating object 330 may include, For example,, type data" appears to be incorrect and it appears that it should be "an information updating object 330 may include, for example, type data".

Specification Page 42, Para 2, Lines 1-2, "a information updating object 330 may include, For example,, data necessary" appears to be incorrect and it appears that it should be "an information updating object 330 may include, for example, data necessary".

Specification Page 42, Para 2, Line 3, "the attributes 460 may include, For example,, type data" appears to be incorrect and it appears that it should be "the attributes 460 may include, for example, type data".

Specification Page 42, Para 3, Line 3, "a boilers inlet temperature" appears to be incorrect and it appears that it should be "a boiler's inlet temperature".

Appropriate corrections are required.

Claim Objections

7. The following is a quotation of 37 C.F.R § 1.75 (d)(1):

> The claim or claims must conform to the invention as set forth in the remainder of the specification and terms and phrases in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

8. Claims 1, 2, 8, 10 and 12-16 are objected to because of the following informalities:

Claim 1 states, "An article as a computer-readable medium storing data structures of both executable and operational types, the data structures comprising". The term "data structures of executable type" appears to be incorrect. Microsoft Press Computer Dictionary, on Page 33, defines data structure as "An organizational scheme such as a record or an array that can be applied to data to facilitate interpreting data and performing operations on it". So data can be operated on. H. Katzan, Jr. in his book, entitled, "Computer data management and Data Base Technology", defines data structure as conceptualization of data as data values, lists and tables. Programs are designed to operate on these structures and produce computed results. Storage structures are the actual symbols that represent data structures in the storage units of the computer. A data structure is represented by arranging units of storage in a characteristic manner. Therefore there is "data structure of the executable type" defined in the computer science. The applicants apparently meant computer programs.

The use of the term "the data structures" in claims 2, 8, 10 and 13-16 appears to be incorrect and it appears that it should be "computer program".

In claim 12, "configured to interact with a third party module provided by a third party product module holds all data and interfaces with vendor software" appears to be incorrect and it appears that it should be "configured to interact with a third party module provided by a third party wherein product module holds all data and interfaces with vendor software". The use of the term "all data" also appears to be incorrect and it appears that it should be "product data".

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1- 4, 8-20 and 29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

10.1 Claim 1 states in part, "an input module configured to receive inputs", "a design module operably connected to the input module and configured to operate on the inputs", "the input module and design module, further configured to automatically provide multiple schematic representations of a selected design element" and "an output module configured to provide a user-interpretable output". One of ordinary skill in the art will understand configuring to mean selecting different components and organizing them into a system by properly connecting them to provide specific functions and performance. The specification does not describe how an input module is configured to receive inputs, a design module is configured to operate on the inputs, the input module and design module are configured to provide multiple schematic representations of a selected design element and an output module is configured to provide a user-interpretable output. The specification does not describe what the components of these modules are and how they are connected.

10.2 Claim 2 states in part, "a user interface module configured to receive inputs from a user to control selection". The specification does not describe what the components of the user interface module are and how they are connected.

10.3 Claim 3 states in part, "the input module and user interface module are configured to interface with the design module substantially independently from one another". The specification does not describe what the components of the input module and user interface module are and how they are connected.

The use of the term, "to interface with the design module substantially independently from one another" appears to be incorrect since the user interface module is part of the input module as shown in Fig. 2 and Fig. 13; all inputs provided by the user through the user interface module will be validated by the input module before appropriate action is taken by the input module.

10.4 Claim 4 states in part, "a user interface module configured to: receive inputs from a user to control selection". The specification does not describe what the components of the user interface module are and how they are connected.

10.5 Claim 8 states in part, "a product module configured to manage data". The specification does not describe what the components of the product module are and how they are connected.

10.6 Claim 9 states in part, "an updating module configured to update the product properties". The specification does not describe what the components of the updating module are and how they are connected.

10.7 Claim 10 states in part, "a communication module configured to automatically establish communication between a user and the vendor of the product". The specification does not describe what the components of the communication module are and how they are connected.

10.8 Claim 11 states in part, "the communication module is further configured to do at least one of making inquiries of the vendor". The specification does not describe what the components of the communication module are and how they are connected.

10.9 Claim 12 states in part, "a third party module provided by a third party product module holds all data and interfaces with vendor software". The specification does not describe what these "all data" are and if that meant that no other module holds any data.

10.10 Claim 13 states in part, "a load module configured to provide, to the input module, HVAC loading parameters". The specification does not describe what the components of the load module are and how they are connected.

10.11 Claim 14 states in part, "a CAD module configured to provide, to the input module, data reflecting a design of an edifice". The specification does not describe what the components of the CAD module are and how they are connected.

10.12 Claim 15 states in part, "a product module configured to specify products available for sale". The specification does not describe what the components of the product module are and how they are connected.

10.13 Claim 16 states in part, "a compensation module configured to identify monetary compensation due to a user from vendors". The specification does not describe what the components of the compensation module are and how they are connected.

The description of the compensation module appears to be incorrect. Specification Page 4, Para 2, Lines 1-3, state "a business may be credited financially for providing software to a user who subsequently uses the software to make a purchasing decision". Typically, compensation will be paid by a user to vendors of the products specified and vendors may not provide compensation to the users.

10.14 Claim 17 states in part, "a load module configured to receive outputs from the CAD module". The specification does not describe what the components of the load module are and how they are connected.

Claim 17 states in part, "a vendor module, provided by an independent vendor and configured to specify products available for sale". The specification does not describe what the components of the vendor module are and how they are connected. The vendor module is not shown in Figure 13.

10.15 Claim 18 states in part, "the output module is further configured to do at least one of generating reports". The specification does not describe what the components of the output module are and how they are connected.

10.16 Claim 19 states in part, "the product module further comprises a specification module configured to provide a detailed specification". The specification does not describe what the components of the product module are and how they are connected.

10.17 Claim 20 states in part, "a filter module configured to sort the products by features". The specification does not describe what the components of the filter module are and how they are connected.

10.18 Claim 29 states in part, "providing a compensation module configured to automatically provide notification of compensation due to a user as a result of incorporating a product of a vendor into the HVAC design".

The description of the compensation module appears to be incorrect. Specification Page 4, Para 2, Lines 1-3, state "a business may be credited financially for providing software to a user who subsequently uses the software to make a purchasing decision". Typically, compensation will be paid by a user to vendors of the products specified and vendors may not provide compensation to the users.

11. Claims 1, 2, 8, 10 and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11.1 Claim 1 states in part, "An article as a computer-readable medium storing data structures of both executable and operational types, the data structures comprising". The term "data structures of executable type" is undefined, making the claim vague and indefinite.

11.2 In claims 2, 8, 10 and 13-16, the term "data structure" is undefined, making the claims vague and indefinite.

Claim Interpretations

12. In claims 1, 2, 8, 10 and 13-16, the term "data structures of executable type" is interpreted as "computer programs".

In claims 1- 4, 8-11 and 13-20, the term "configured" is interpreted as "comprising computer executable instructions".

Claim Rejections - 35 USC § 101

13. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

14. Claims 1-30 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter.

14.1 Independent claim 1 recites "An article as a computer-readable medium storing data structures of both executable and operational types, the data structures comprising:

an input module ...;

a design module ...;

the input module and design module...; and

an output module".

The limitations recited in claim contain various modules comprising the data structures, which are stored in the article; the data structures and the article are not statutory subject matter. To be statutory, the claim should specify the computer-readable medium storing computer programs comprising computer executable instructions which when executed in a computer perform a design of the HVAC system, the computer programs comprising ....

The limitations recited in dependent claims 2-21 contain the article of claim 1 or other dependent claims; the article of claim 1 is not statutory subject matter.

14.2. Method claims 22-30 are rejected for reciting a process that is not directed to the technological arts.

Regarding claim 22, this claim is directed at a method for designing an HVAC system, whereas none of the limitations describe any type of computer-implemented steps. To be statutory, the utility of an invention must be within the technological arts. *In re Musgrave*, 167 USPQ 280, 289-90 (CCPA, 1970). The definition of "technology" is the "application of science and engineering to the development of machines and procedures in order to enhance or improve human conditions, or at least to improve human efficiency in some respect." (Computer

Dictionary 384 (Microsoft Press, 2d ed. 1994)).

Dependent claims 23-30 depend on Claim 22 but do not add further statutory steps. The limitations recited in claims 23-30 contain no language suggesting these claims are intended to be within the technological arts.

15.1 Claims 1-21 would be statutory if it is rewritten as:

An article as a computer-readable medium storing computer programs comprising computer executable instructions which when executed in a computer performs a design of the HVAC system, the computer programs comprising ....

15.2 Claims 22-30 would be statutory if claim 22 is rewritten as a computer implemented method for designing an HVAC system, the method comprising:...

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

17. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claims 1-4, 13, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** (U.S. Patent Application 2003/0154279) in view of **Pray et al.** (U.S. Patent 4,885,694).

18.1 **Aziz** teaches symbolic definition of a computer system. Specifically as per claim 1, **Aziz** teaches an article as a computer-readable medium storing data structures of both executable and operational types (Fig. 1D; Fig. 8; Abstract, L1-4; Page 5, Para 0084 and 0085); the data structures comprising:

an input module configured to receive inputs corresponding to design elements, characterized by properties stored in records, the design elements being connectable to establish a computer system to be designed (Abstract, L8-13; Page 1, Para 0009 and Para 0014; Page 4, Para 0076);

a design module operably connected to the input module and configured to operate on the inputs to create the records reflecting the properties of the design elements and interactions thereof to establish a design of the computer system (Page 1, Para 0008, Para 0009 and Para 0014; Page 4, Para 0076; Page 5, Para 0087; Page 6, Para 0097);

the input module and design module, further configured to automatically provide multiple schematic representations of a selected design element, selected from the design elements (Page 1, Para 0007, Para 0008 and Para 0013; Page 4, Para 0076; Page 6, Para 0101);

the multiple schematic representations reflecting distinct operational contexts of the selected design element (Page 1, Para 0013 and Para 0014; Page 4, Para 0076; Page 6, Para 0101); and to automatically maintain substantially complete and consistent information in the records, describing the properties of the selected design element in each of the distinct operational contexts (Page 1, Para 0014; Page 4, Para 0076); and

an output module configured to provide a user-interpretable output reflecting the design of the computer system (Page 1, Para 0008; Page 4, Para 0076; Page 5, Para 0095; Page 7, Para 0112 and Para 0113).

Aziz does not expressly teach the design elements being connectable to establish an HVAC system to be designed; a design module operably connected to the input module and configured to operate on the inputs ... to establish a design of the HVAC system; and an output module configured to provide a user-interpretable output reflecting the design of the HVAC system. **Pray et al.** teaches the design elements being connectable to establish an HVAC system to be designed; a design module operably connected to the input module and configured to operate on the inputs ... to establish a design of the HVAC system; and an output module configured to provide a user-interpretable output reflecting the design of the HVAC system (CL1, L6-9), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of

Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the design elements being connectable to establish an HVAC system to be designed; a design module operably connected to the input module and configured to operate on the inputs ... to establish a design of the HVAC system; and an output module configured to provide a user-interpretable output reflecting the design of the HVAC system. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

18.2 As per claim 2, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** teaches the data structures further comprise a user interface module configured to receive inputs from a user to control selection, relative positioning, and properties of design elements of the computer system to be designed (Abstract, L8-13; Page 1, Para 0009 and Para 0014; Page 4, Para 0076); and

configured to output to a user a graphical representation of the computer system reflecting the selection, relative positioning, and properties of the design elements (Page 1, Para 0008; Page 4, Para 0076; Page 5, Para 0095; Page 7, Para 0112 and Para 0113; Page 6, Para 0101).

Aziz does not expressly teach data structures further comprise a user interface module configured to receive inputs ...and properties of design elements of the HVAC system to be designed and configured to output to a user a graphical representation of the HVAC system reflecting the selection, relative positioning, and properties of the design elements. **Pray et al.** teaches data structures further comprise a user interface module configured to receive inputs

...and properties of design elements of the HVAC system to be designed and configured to output to a user a graphical representation of the HVAC system reflecting the selection, relative positioning, and properties of the design elements (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included data structures further comprising a user interface module configured to receive inputs ...and properties of design elements of the HVAC system to be designed and configured to output to a user a graphical representation of the HVAC system reflecting the selection, relative positioning, and properties of the design elements. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

18.3 As per claim 3, **Aziz** and **Pray et al.** teach the article of claim 2. **Aziz** teaches that the input module and user interface module are configured to interface with the design module substantially independently from one another (Page 4, Para 0076).

18.4 As per claim 4, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** teaches the input module further comprises a user interface module configured to receive inputs from a user to control selection, relative positioning, and properties of design elements of the computer system to be designed (Abstract, L8-13; Page 1, Para 0009 and Para 0014; Page 4, Para 0076); and

output to a user a graphical representation of the computer system reflecting the selection, relative positioning, and properties of the design elements (Page 1, Para 0008; Page 4, Para 0076; Page 5, Para 0095; Page 7, Para 0112 and Para 0113; Page 6, Para 0101).

Aziz does not expressly teach the input module further comprises a user interface module configured to receive inputs ...and properties of design elements of the HVAC system to be designed and output to a user a graphical representation of the HVAC system reflecting the selection, relative positioning, and properties of the design elements. **Pray et al.** teaches the input module further comprises a user interface module configured to receive inputs ...and properties of design elements of the HVAC system to be designed and output to a user a graphical representation of the HVAC system reflecting the selection, relative positioning, and properties of the design elements (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the input module further comprising a user interface module configured to receive inputs ...and properties of design elements of the HVAC system to be designed and output to a user a graphical representation of the HVAC system reflecting the selection, relative positioning, and properties of the design elements. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

18.5 As per claim 13, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** teaches that the data structures further comprise a load module configured to provide, to the input module, computer system loading parameters required to be accommodated by the computer system design (Page 2, Para 0016).

Aziz does not expressly teach that the data structures further comprise a load module configured to provide, to the input module, HVAC loading parameters required to be accommodated by the HVAC system design. **Pray et al.** teaches that the data structures further comprise a load module configured to provide, to the input module, HVAC loading parameters required to be accommodated by the HVAC system design (CL1, L6-9), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the data structures further comprising a load module configured to provide, to the input module, HVAC loading parameters required to be accommodated by the HVAC system design. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

18.6 As per claim 14, **Aziz** and **Pray et al.** teach the article of claim 13. **Aziz** does not expressly teach that the data structures further comprise a CAD module configured to provide, to the input module, data reflecting a design of an edifice to be serviced by the design of the HVAC system. **Pray et al.** teaches that the data structures further comprise a CAD module configured to provide, to the input module, data reflecting a design of an edifice to be serviced by the design

of the HVAC system (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would allow designing and drafting to generate a schematic drawing of the desired HVAC system with minimum of labor hours (CL1, L16; CL2, L57-59). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the data structures further comprising a CAD module configured to provide, to the input module, data reflecting a design of an edifice to be serviced by the design of the HVAC system. The artisan would have been motivated because that would allow designing and drafting to generate a schematic drawing of the desired HVAC system with minimum of labor hours.

18.7 As per claim 18, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** teaches that the output module is further configured to do at least one of generating reports, drawing schematic illustrations, providing schedules of components, and providing performance analyses reflecting the design elements (Page 7, Para 0112 and Para 0113; Page 1, Para 0008, Para 0009, Para 0013; Page 4, Para 0076; page 1, Para 0010).

19. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** (U.S. Patent Application 2003/0154279) in view of **Pray et al.** (U.S. Patent 4,885,694), and further in view of **Gibino et al.** (U.S. Patent 6,179,213).

19.1 As per claim 5, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** does not expressly teach that the operational contexts are selected from mass transport and energy transport.

Gibino et al. teaches that the operational contexts are selected from mass transport and energy transport (CL1, L7-9; CL2, L14-19; Fig. 2; Fig. 6), because that would allow controlling thermal output air and fluids in the HVAC system to control the system operation (CL2, L14-19). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Gibino et al.** that included the operational contexts being selected from mass transport and energy transport. The artisan would have been motivated because that would allow controlling thermal output air and fluids in the HVAC system to control the system operation.

20. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** (U.S. Patent Application 2003/0154279) in view of **Pray et al.** (U.S. Patent 4,885,694), and further in view of **Gibino et al.** (U.S. Patent 6,179,213) and **Littleford et al.** (U.S. Patent 6,076,739).

20.1 As per claim 6, **Aziz, Pray et al.** and **Gibino et al.** teach the article of claim 5. **Aziz** does not expressly teach that mass transport includes at least one of air transport and water transport. **Gibino et al.** teaches that mass transport includes at least one of air transport and water transport (CL1, L7-9; CL2, L14-19; Fig. 2; Fig. 6), because that would allow controlling thermal output air and water in the HVAC system to control the system operation (CL2, L14-19). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Gibino et al.** that included mass transport including at least one of air transport and water transport. The artisan would have been motivated because that would

allow controlling thermal output air and water in the HVAC system to control the system operation.

Aziz does not expressly teach that energy transport includes at least one of heating and cooling with respect to the selected design element. **Littleford et al.** teaches that energy transport includes at least one of heating and cooling with respect to the selected design element (Abstract, L1-5; Fig. 1; CL3, L1-56), because heating coil is used whenever the air temperature starts to drop lower than a set point temperature, usually 55° F to maintain constant temperature in the space (CL3, L34-36); and cooling coil is used to remove heat from the air (CL3, L40-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Littleford et al.** that included energy transport including at least one of heating and cooling with respect to the selected design element. The artisan would have been motivated because heating coil would be used whenever the air temperature started to drop lower than a set point temperature, usually 55° F to maintain constant temperature in the space; and cooling coil would be used to remove heat from the air.

21. Claims 7-12, 15-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** (U.S. Patent Application 2003/0154279) in view of **Pray et al.** (U.S. Patent 4,885,694), and further in view of **House al.** (U.S. Patent 6,785,805).

21.1 As per claim 7, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** does not expressly teach that the selected design element comprises a product available from a vendor, independent from the article, the product characterized by product properties corresponding thereto; and the

design module further comprises a specification module, executable to assign the product properties as the properties of the selected design element. **House et al.** teaches that the selected design element comprises a product available from a vendor, independent from the article, the product characterized by product properties corresponding thereto; and the design module further comprises a specification module, executable to assign the product properties as the properties of the selected design element (CL1, L16-18; CL2, L1-4; CL2, L12-15), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the selected design element comprising a product available from a vendor, independent from the article, the product characterized by product properties corresponding thereto; and the design module further comprising a specification module, executable to assign the product properties as the properties of the selected design element. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

21.2 As per claim 8, **Aziz, Pray et al.** and **House et al.** teach the article of claim 7. **Aziz** teaches that the data structures further comprise a product module configured to manage data reflecting the product properties (Page 1, Para 0008; Page 1, Para 0014).

21.3 As per claim 9, **Aziz, Pray et al.** and **House et al.** teach the article of claim 8. **Aziz** teaches that the product module further comprises an updating module configured to update the product properties (Page 1, Para 0012).

21.4 As per claim 10, **Aziz, Pray et al.** and **House et al.** teach the article of claim 7. **Aziz** does not expressly teach that the data structures further comprise a communication module configured to automatically establish communication between a user and the vendor of the product. **House et al.** teaches that the data structures further comprise a communication module configured to automatically establish communication between a user and the vendor of the product (CL1, L16-18; CL2, L12-18), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the data structures further comprising a communication module configured to automatically establish communication between a user and the vendor of the product. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

21.5 As per claim 11, **Aziz, Pray et al.** and **House et al.** teach the article of claim 10. **Aziz** does not expressly teach that the communication module is further configured to do at least one

of making inquiries of the vendor, placing orders with the vendor, and downloading updated values of the product properties from the vendor. **House et al.** teaches that the communication module is further configured to do at least one of making inquiries of the vendor, placing orders with the vendor, and downloading updated values of the product properties from the vendor (CL2, L12-27; Cl2, L35-44), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15); and component vendors provide price quotes for selected components and online quotes for built-to-order subsystems that may be used in the systems (CL2, L18-23); if the customer decides to order the system, the vendor builds the subsystem based on the customer's entered specifications (CL2, L41-43). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the communication module being further configured to do at least one of making inquiries of the vendor, placing orders with the vendor, and downloading updated values of the product properties from the vendor. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application; and component vendors would provide price quotes for selected components and online quotes for built-to-order subsystems that might be used in the systems; if the customer decided to order the system, the vendor would build the subsystem based on the customer's entered specifications.

21.6 As per claim 12, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** does not expressly teach the article further configured to interact with a third party module provided by a third party product module holds all data and interfaces with vendor software. **House et al.** teaches the article further configured to interact with a third party module provided by a third party product module holds all data and interfaces with vendor software (CL2, L16-18), because the third parties offer online selection tools to assist a user in choosing components from multiple component vendors (CL2, L16-18). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the article further configured to interact with a third party module provided by a third party product module holding all data and interfaces with vendor software. The artisan would have been motivated because the third parties would offer online selection tools to assist a user in choosing components from multiple component vendors.

21.7 As per claim 15, **Aziz** and **Pray et al.** teach the article of claim 14. **Aziz** does not expressly teach that the data structures further comprise a product module configured to specify products available for sale and meeting requirements to be the design elements. **House et al.** teaches that the data structures further comprise a product module configured to specify products available for sale and meeting requirements to be the design elements (CL2, L12-16), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of

House et al. that included the data structures further comprising a product module configured to specify products available for sale and meeting requirements to be the design elements. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

21.8 As per claim 16, **Aziz, Pray et al.** and **House et al.** teach the article of claim 15. **Aziz** does not expressly teach that the data structures further comprise a compensation module configured to identify monetary compensation due to a user from vendors of the products specified as design elements in the HVAC system design. **House et al.** teaches that the data structures further comprise a compensation module configured to identify monetary compensation due to a user from vendors of the products specified as design elements in the computer system design (CL2, L21-27; CL2, L35-44), because component vendors provide price quotes for selected components and online quotes for built-to-order subsystems that may be used in the systems CL2, L18-23); if the customer decides to order the system, the vendor builds the subsystem based on the customer's entered specifications (CL2, L41-43). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the data structures further comprising a compensation module configured to identify monetary compensation due to a user from vendors of the products specified as design elements in the computer system design. The artisan would have been motivated because component vendors would provide price quotes for selected components and online quotes for built-to-order subsystems that might be used in the systems; if

the customer decided to order the system, the vendor would build the subsystem based on the customer's entered specifications.

Aziz does not expressly teach the products specified as design elements in the HVAC system design. **Pray et al.** teaches the products specified as design elements in the HVAC system design (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the products specified as design elements in the HVAC system design. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

21.9 As per claim 17, **Aziz** and **Pray et al.** teach the article of claim 1. **Aziz** does not expressly teach a CAD module provided by an independent third party to provide, to the input module, data reflecting a design of an edifice to be serviced by the design of the HVAC system. **Pray et al.** teaches a CAD module to provide, to the input module, data reflecting a design of an edifice to be serviced by the design of the HVAC system (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would allow preparing a schedule for the types of components that have been selected by the system (CL15, L9-10; CL152, L17-19). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the data structures further comprising a CAD module configured to provide, to the input module, data reflecting a design of an edifice to be serviced

by the design of the HVAC system. The artisan would have been motivated because that would allow preparing a schedule for the types of components that have been selected by the system.

Aziz teaches a load module configured to receive outputs from the user interface module and provide, to the input module, computer system loading parameters required to be met by the computer system design (Page 2, Para 0016). **Aziz** does not expressly a load module configured to receive outputs from the CAD module and provide, to the input module, HVAC loading parameters required to be met by the HVAC system design. **Pray et al.** teaches a module configured to receive outputs from the CAD module and provide, to the input module, HVAC parameters required to be met by the HVAC system design (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would allow preparing a schedule for the types of components that have been selected by the system (CL15, L9-10; CL152, L17-19). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** that included a load module configured to receive outputs from the user interface module and provide, to the input module, computer system loading parameters required to be met by the computer system design with the article of **Pray et al.** that included a module configured to receive outputs from the CAD module and provide, to the input module, HVAC parameters required to be met by the HVAC system design. The artisan would have been motivated because that would allow preparing a schedule for the types of components that have been selected by the system.

Aziz does not expressly teach a vendor module, provided by an independent vendor and configured to specify products available for sale and meeting the requirements to be the design elements. **House et al.** teaches a vendor module, provided by an independent vendor and

configured to specify products available for sale and meeting the requirements to be the design elements (CL2, L12-16), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included a vendor module, provided by an independent vendor and configured to specify products available for sale and meeting the requirements to be the design elements. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

21.10 As per claim 19, **Aziz** and **Pray et al.** teach the article of claim 14. **Aziz** does not expressly teach that the product module further comprises a specification module configured to provide a detailed specification for an arbitrary number of selected design elements. **House et al.** teaches that the product module further comprises a specification module configured to provide a detailed specification for an arbitrary number of selected design elements (CL2, L12-16; CL2, L35-44), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the product module further

comprises a specification module configured to provide a detailed specification for an arbitrary number of selected design elements. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

21.11 As per claim 20, **Aziz, Pray et al.** and **House et al.** teach the article of claim 19. **Aziz** does not expressly teach that the product module further comprises product data corresponding to products available from vendors to serve as the design elements. **House et al.** teaches that the product module further comprises product data corresponding to products available from vendors to serve as the design elements (CL1, L16-18; CL2, L1-4; CL2, L12-15), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the product module further comprising product data corresponding to products available from vendors to serve as the design elements. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

Aziz does not expressly teach that the specification module further comprises a filter module configured to sort the products by features thereof and priorities of the features, each

selectable by a user, in order to automatically specify detailed parameters characterizing a product selected by a user to serve as the selected design element. **House et al.** teaches that the specification module further comprises the products each selectable by a user, in order to automatically specify detailed parameters characterizing a product selected by a user to serve as the selected design element (CL3, L52-58; CL4, L13-17), because that allows providing price quote for the components to the online user by retrieving stored information (CL4, L17-23). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **House et al.** that included the specification module further comprising the products each selectable by a user, in order to automatically specify detailed parameters characterizing a product selected by a user to serve as the selected design element. The artisan would have been motivated because that would allow providing price quote for the components to the online user by retrieving stored information.

Aziz does not expressly that the specification module further comprises a filter module configured to sort the products by features thereof and priorities of the features. **Pray et al.** teaches that the specification module further comprises a filter module configured to sort the products by features thereof and priorities of the features (CL3, L55-60), because that would allow a filing system to sort the items in the database and identify the selected items (CL3, L58-60). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the specification module further comprising a filter module configured to sort the products by features thereof and priorities of the features. The artisan would have been motivated because that would allow a filing system to sort the items in the database and identify the selected items.

21.12 As per claim 21, **Aziz, Pray et al.** and **House et al.** teach the article of claim 20. **Aziz** teaches that the user interface further comprises a selection module providing a palette of icons representing design elements selectable arbitrarily by a user and connectable to one another in a schematic work space to establish the computer system design (Page 1, Para 0008, Para 0009 and Para 0014; Page 2, Para 0019; Page 4, Para 0076; Page 6, Para 0101).

Aziz does not expressly teach the user interface further comprises a selection module representing design elements selectable arbitrarily by a user and connectable to one another in a schematic work space to establish the HVAC system design. **Pray et al.** teaches that the user interface further comprises a selection module representing design elements selectable arbitrarily by a user and connectable to one another in a schematic work space to establish the HVAC system design (CL1, L6-9), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the article of **Aziz** with the article of **Pray et al.** that included the user interface further comprising a selection module representing design elements selectable arbitrarily by a user and connectable to one another in a schematic work space to establish the HVAC system design. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

22. Claims 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** (U.S. Patent Application 2003/0154279) in view of **Pray et al.** (U.S. Patent 4,885,694), and further in

view of **Milousheve et al.** (U.S. Patent Application 2001/0037412) and **House al.** (U.S. Patent 6,785,805).

22.1 As per claim 22, **Aziz** teaches method for designing a computer system (Abstract, L1-4; Page 1, Para 0001, Para 0014); the method comprising:

providing a database having records and configured to manage values of properties corresponding to design elements corresponding to substantially all physical components and connections available for creating a computer system design (Page 4, Para 0081; Page 1, Para 0014);

providing a user interface configured to represent design elements arbitrarily selectable by a user and connectable to one another in a schematic to establish the computer system design (Page 1, Para 0008, Para 0009 and Para 0014; Page 2, Para 0019; Page 4, Para 0076; Page 6, Para 0101);

selecting arbitrarily, from the design elements, by a user, an arbitrary number of selected design elements to be interconnected in the computer system design (Page 1, Para 0008, Para 0009 and Para 0014; Page 2, Para 0019; Page 4, Para 0076; Page 6, Para 0101);

selecting, by a user, a relative location and interconnections corresponding to each arbitrary design element (Page 1, Para 0009 and Para 0014; Page 2, Para 0019; Page 4, Para 0076);

calculating, automatically, values of properties characterizing the arbitrary design elements (Page 1, Para 0010; Page 4, Para 0077);

validating correctness of the interconnections and properties (Page 6, Para 0095);

calculating performance parameters corresponding to the computer system design (Page 7, Para 012).

Aziz does not expressly teach a method for designing an HVAC system; providing a database having records and configured to manage ... creating an HVAC system design; providing a user interface configured to ... establish the HVAC system design; selecting arbitrarily... an arbitrary number of selected design elements to be interconnected in the HVAC system design; and calculating performance parameters corresponding to the HVAC system design. **Pray et al.** teaches a method for designing an HVAC system; providing a database having records and configured to manage ... creating an HVAC system design; providing a user interface configured to ... establish the HVAC system design; selecting arbitrarily... an arbitrary number of selected design elements to be interconnected in the HVAC system design; and calculating performance parameters corresponding to the HVAC system design (CL1, L6-9), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **Pray et al.** that included a method for designing an HVAC system; providing a database having records and configured to manage ... creating an HVAC system design; providing a user interface configured to ... establish the HVAC system design; selecting arbitrarily... an arbitrary number of selected design elements to be interconnected in the HVAC system design; and calculating performance parameters corresponding to the HVAC system design. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

Aziz does not expressly teach providing drawings defining the HVAC system design for construction. **Pray et al.** teaches providing drawings defining the HVAC system design for construction (CL1, L42-44; CL3, L60-65; CL4, L50-51), because that would reduce the man-hours required for design of the HVAC systems by using CAD package to create and update drawings (CL1, L16; CL4, L50-51). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **Pray et al.** that included providing drawings defining the HVAC system design for construction. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems by using CAD package to create and update drawings.

Aziz does not expressly teach providing, automatically, default values corresponding to the properties corresponding to the design elements. **Milousheve et al.** teaches providing, automatically, default values corresponding to the properties corresponding to the design elements (Page 33, Para 0628), because as per **House et al.** that would assist a user in selecting components based on pre-configured systems (CL2, L18-21). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **Milousheve et al.** that included providing, automatically, default values corresponding to the properties corresponding to the design elements. The artisan would have been motivated because that would assist a user in selecting components based on pre-configured systems.

22.2 As per claim 23, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 22. **Aziz** teaches creating and outputting schedules specifying each of the arbitrarily selected design elements (Page 1, Para 0001, Para 0012; Page 4, Para 0081).

22.3 As per claim 24, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 23. **Aziz** does not expressly teach providing a list of products and corresponding vendors meeting the performance parameters corresponding to the selected design elements. **House et al.** teaches providing a list of products and corresponding vendors meeting the performance parameters corresponding to the selected design elements (CL2, L12-16), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **House et al.** that included providing a list of products and corresponding vendors meeting the performance parameters corresponding to the selected design elements. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

22.4 As per claim 25, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 24. **Aziz** does not expressly teach automatically downloading from a vendor updated lists of products and corresponding properties. **House et al.** teaches automatically downloading from

a vendor updated lists of products and corresponding properties (CL2, L12-16), because several component vendors offer components online and online selection tools that assist a user in identifying individual components available from the specific component vendor to fit the user's specific application (CL2, L12-15). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **House et al.** that included automatically downloading from a vendor updated lists of products and corresponding properties. The artisan would have been motivated because several component vendors would offer components online and online selection tools that would assist a user in identifying individual components available from the specific component vendor to fit the user's specific application.

22.5 As per claim 26, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 22. **Aziz** teaches obtaining, from a loads program, selected performance parameter requirements corresponding to the design elements (Page 2, Para 0016).

22.6 As per claim 27, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 26. **Aziz** teaches providing an input module configured to support user selection of design elements; and interacting the input module with the loads program to provide selected inputs automatically to the input module (Abstract, L8-13; Page 1, Para 0009 and Para 0014; page 2, Para 0016; Page 4, Para 0076);

22.7 As per claim 28, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 27. **Aziz** does not expressly teach providing a CAD program to provide inputs, corresponding to a structure to be served by the HVAC design, into the loads program. **Pray et al.** teaches providing a CAD program to provide inputs, corresponding to a structure to be served by the HVAC design, into the loads program (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would allow designing and drafting to generate a schematic drawing of the desired HVAC system with minimum of labor hours (CL1, L16; CL2, L57-59). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **Pray et al.** that included providing a CAD program to provide inputs, corresponding to a structure to be served by the HVAC design, into the loads program. The artisan would have been motivated because that would allow designing and drafting to generate a schematic drawing of the desired HVAC system with minimum of labor hours.

22.8 As per claim 29, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 27. **Aziz** does not expressly teach providing a compensation module configured to automatically provide notification of compensation due to a user as a result of incorporating a product of a vendor into the HVAC design as one of the design elements. **House et al.** teaches providing a compensation module configured to automatically provide notification of compensation due to a user as a result of incorporating a product of a vendor into the computer system design as one of the design elements (CL2, L21-27; CL2, L35-44), because component vendors provide price quotes for selected components and online quotes for built-to-order subsystems that may be used in the systems CL2, L18-23); if the customer decides to order the

system, the vendor builds the subsystem based on the customer's entered specifications (CL2, L41-43). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **House et al.** that included providing a compensation module configured to automatically provide notification of compensation due to a user as a result of incorporating a product of a vendor into the computer system design as one of the design elements. The artisan would have been motivated because component vendors would provide price quotes for selected components and online quotes for built-to-order subsystems that might be used in the systems; if the customer decided to order the system, the vendor would build the subsystem based on the customer's entered specifications.

Aziz does not expressly teach a user incorporating a product into the HVAC design as one of the design elements. **Pray et al.** teaches a user incorporating a product into the HVAC design as one of the design elements (CL1, L6-9; CL3, L60-66; CL4, L50-51), because that would reduce the man-hours required for design of the HVAC systems (CL1, L16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **Pray et al.** that included a user incorporating a product into the HVAC design as one of the design elements. The artisan would have been motivated because that would reduce the man-hours required for design of the HVAC systems.

23. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** (U.S. Patent Application 2003/0154279) in view of **Pray et al.** (U.S. Patent 4,885,694), and further in view of **Milousheve et al.** (U.S. Patent Application 2001/0037412), **House al.** (U.S. Patent 6,785,805) and **Littleford et al.** (U.S. Patent 6,076,739).

23.1 As per claim 30, **Aziz, Pray et al., Milousheve et al.** and **House al.** teach the method of claim 22. **Aziz** does not expressly teach that the properties are selected from intrinsic parameters inherent in the design elements and extrinsic parameters corresponding to external environmental conditions corresponding to the design elements. **Littleford et al.** teaches that the properties are selected from intrinsic parameters inherent in the design elements and extrinsic parameters corresponding to external environmental conditions corresponding to the design elements (Abstract, L1-5; Fig. 1; CL3, L1-56), because HVAC systems supply conditioned air to various zones in the building (CL3, L4-5); heating is used whenever the air temperature starts to drop lower than a set point temperature, usually 55° F to maintain constant temperature in the space (CL3, L34-36); and cooling is used to remove heat from the air (CL3, L40-41). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the method of **Aziz** with the method of **Littleford et al.** that included the properties being selected from intrinsic parameters inherent in the design elements and extrinsic parameters corresponding to external environmental conditions corresponding to the design elements. The artisan would have been motivated because HVAC systems supply conditioned air to various zones in the building; heating coil would be used whenever the air temperature started to drop lower than a set point temperature, usually 55° F to maintain constant temperature in the space; and cooling coil would be used to remove heat from the air.

Conclusion

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on 571-272-3716. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Thangavelu
Art Unit 2123
February 17, 2005

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